

Waste Industry



Improve Operational Efficiency With Modern Truck Scale Solutions

METTLER TOLEDO



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2 Common Truck Scale Challenges

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4 More Than Just a Scale Supplier

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Market trends in the Waste industry and how they impact Truck Scales

- **Industry expansion has led to gains in operational efficiency**
 - In North America and Europe mergers & acquisitions within the waste industry have been common place over the past several years. With strong industry growth we have seen an increase in truck scale best practice sharing across sites/regions, leading to improved operational efficiency through the use of new technology and automation.
- **More infrastructure investment means more waste**
 - Globally, infrastructure investment is expected to rise for the foreseeable future. An increase in infrastructure projects will lead to more construction waste. It is critical that your truck scale is built to handle the increase in throughput.
 - In order to handle this growth many Asian, Middle East, and African markets are in the process of establishing local waste facilities.
- **Stronger emphasis on data capturing**
 - As more companies continue to set measurable sustainability targets, weight and material data continues to increase in importance. Data captured at the truck scale can help you measure towards your zero waste goals.



Truck scales play a critical role in day-to-day activities for the waste industry

- Whether you are using a truck scale to manage your daily transactions or simply to track different materials coming in and out of your facility it is critical to ensure that the equipment you choose is built with the following criteria in mind:

Transfer Station	Materials Recovery Facility	Waste to Energy	Landfill Deposit
			
<ul style="list-style-type: none">Vehicle throughputEquipment uptimeTraffic managementMinimized maintenance costs	<ul style="list-style-type: none">Visibility into material tracking and inventory controlEquipment uptimeVehicle throughputMinimized maintenance costs	<ul style="list-style-type: none">Equipment uptimeMinimized maintenance costsCompliance information	<ul style="list-style-type: none">Traffic managementData tracking to assist with cell sizing and construction timingScale accuracyEquipment uptime

The Municipal Solid Waste process

Residential Commercial
Waste

Waste Collection

Transfer Station



Materials Recovery
Facility

Waste To Energy /
Incineration

Landfill Deposit



No opportunity for VEH weighing solutions
Opportunity for VEH weighing solutions

Solutions that help you maximize the yield of your operation

- METTLER TOLEDO has been operating in the industrial sector **since 1901** and for the past 50 years has been the **#1 global supplier** of vehicle scales.
- METTLER TOLEDO's vehicle scale equipment portfolio includes **truck scales, rail scales, VEH transaction management software, terminals (both unattended and attended), load cell upgrade kits, and service.**
- Within the waste segment we have collaborated with **municipalities, corporations, and engineering firms** to design truck and rail scale projects for a variety of applications such as:

Material Receiving



Custody Transfer



Compliance



Rail Scales



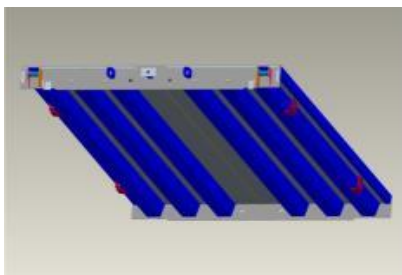
Reliable equipment that can operate in less than reliable conditions

- Common causes of truck scale failure in the waste industry:
 - Environmental Factors (Water/flooding, lightning, Ice, temperature)
 - Shock-loading
- METTLER TOLEDO Solutions:
 - POWERCELL Load Cells: On average, owners of analog truck scales **replace 5X's** more load cells over the life of the scale than owners of POWERCELL PDX truck scales.
 - MT Weighbridges are built to last for **20 years or more** with minimal downtime.

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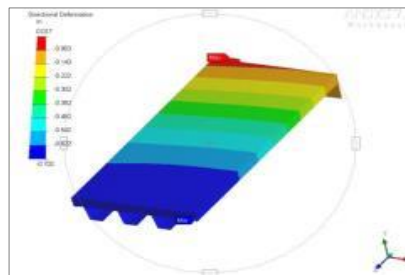
Other Vehicle Scale Manufacturer's

Design Modeling



Model is created using 3D CAD

Finite Element Analysis (FEA)



Design is virtually tested to determine stress areas, showing how it would theoretically perform under various loading conditions

Regulatory Testing



90% of the concentrated load capacity (CLC) is loaded onto the weighbridge **twice**

Lifecycle Testing



100% of the CLC is applied to the module up to **2 million times**. Any design flaws that occur will be adjusted and the new design will go back through the full testing process

4 reasons to update your transaction management process

- Often times the truck scale is the first thing that your customer sees when they pull into your facility. It's important that they have a good first impression.
- The benefits of automating your truck scale operation can be felt throughout almost all business areas of your company.
- Unattended terminals that utilizes DataBridge VEH management software will:
 - Reduce the **risk of transaction errors** due to manual ticket entry
 - Help to achieve **up to 50% faster transaction times**; meaning more trucks per day and happier customers.
 - Provide **advanced reporting capabilities** for your finance teams; no more manual calculations.
 - Improved **visibility into operations**, helping you achieve your sustainability targets with better material tracking and inventory planning.

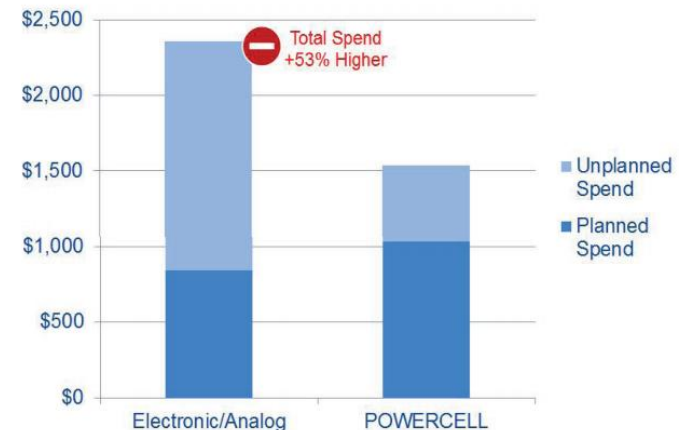


What will your truck scale really cost you?

- Overtime service costs on less expensive scales can grow quickly and in some cases even surpass the original cost of the scale.
- Initial project cost shouldn't be the only focus.
- It is critical to consider the following points to understand how the **ongoing costs of a scale can quickly turn into a money pit**:
 - Load cell systems have the **greatest impact on ongoing total expenditure**
 - Inexpensive scales are accompanied by **weak warranty's** and high repair fees.
- METTLER TOLEDO **protects your profits**:
 - In the waste industry, our service data shows that customers with analog truck scales spend **+53% more annually on repairs** than owners of scales with POWERCELL
 - POWERCELL PDX systems come with an **all-inclusive 10 year warranty**

Truck Scale Spend Analysis		
System Component	Initial Cost	Ongoing cost
Weighbridge	35%	5%
Load Cell System	20%	65%
Foundation	20%	0%
Terminal/Software	10%	10%
Planned Services	15%	20%

Annual Planned v. Unplanned Spend per Scale (USD)



Are you forfeiting profits on every truckload?

- Annual Weights & Measures certification of a scale does not ensure long-term accuracy.
- Choosing the right load cell technology can limit your exposure to product giveaway and/or poor material tracking.
- The below accuracy table is based on 4,809 service records from the past 3 years.
 - Monthly calculations based on 100 trucks per day, 6 days a week, 4 weeks of operation.

Scale Technology	% Found outside legal tolerance	Accuracy Range (95%)	Shrink Per Day	Lost Profit Per Day	Lost Profit Per Month	Lost Profit Per Day	Lost Profit Per Month
		10t test load	40t GVW	MSW (\$35/ton)		Scrap Metal (\$250/ton)	
POWERCELL Load Cells	9%	+/- 53 kg	+/- 19 tons	+/- \$665	+/- \$15,960	+/- \$4,700	+/- \$114,000
Analog Load Cells	21%	+/- 130 kg	+/- 48 tons	+/- \$1,680	+/- \$40,320	+/- \$12,000	+/- \$288,000
Hydraulic Load Cells	12%	+/- 116 kg	+/- 46 tons	+/- \$1,610	+/- \$38,640	+/- \$11,500	+/- \$276,000

POWERCELL PDX load cells are up to 2 times more accurate than traditional analog load cell systems.

Resources that help you get the most out of your truck scale

■ Truck Scale / Weighbridge Buying Guide

- The Truck Scale Buying Guide is a comprehensive resource that provides you with everything you need to know to successfully specify, order, and install a new truck scale or weighbridge.



■ Whitepaper: Compliance and Weighing Equipment in Waste Facilities

- Getting you up to speed on all of the latest rules and regulations surrounding weighing equipment at waste facilities in North America.

■ Truck Scale Routine Care Poster

- Scale cleanliness is a constant battle in the waste industry. The Truck Scale Routine Care Poster will help you stay on track with recommended weekly, monthly, and yearly preventative maintenance tips.

Weighbridge Routine Care
Extend the Life of Your Equipment

Services an owner/operator can perform

Daily	<ul style="list-style-type: none"> Visually inspect around the scale. Look for and clear any obstructions. Control traffic flow to ensure scale safety.
Monthly	<ul style="list-style-type: none"> Clean the scale, including working around and under the scale to remove debris such as packed mud, snow or fallen product.
Alternate Months	<ul style="list-style-type: none"> Conduct a portable weight test - only if safe and test weights are available. Order a full service calibration if accuracy discrepancies show.

Services a certified technician must perform

<ul style="list-style-type: none"> Schedule calibration through service provider or certified by Weights & Measures. Failure to do so can mean fines and forced scale shut-down. 	Every 6 to 12 Months	✓
<ul style="list-style-type: none"> Schedule recommended preventative maintenance performed by your service provider. 	Every 3, 6 or 12 Months	✓
<ul style="list-style-type: none"> To extend the life of your weighbridge, your service provider may recommend a load cell system upgrade. 	As Recommended	✓

For step by step information on how to execute each of the above activities and printing the life of your equipment, download the free Preventive Maintenance Guide. www.met.com/PSM

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Your Next Truck Scale a Guide to Project Components

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Technology Comparison Report Scale Performance in Your Industry



3 years, we have collected data from the nearly 900 Waste Facilities we serve in North America. See below results and consider how your truck scale would might be surprised.

1. Million Scale Costs
200 trucks in use per day
\$1,645,000 total
scale length of 21 m

2. Million Scale Costs
Truck scale expenses fell in two major buckets: planned preventative maintenance and unplanned down time. For waste operators choosing among common spending +53% more on every scale.



4. Are You Certain About Your Scale Accuracy?
The below accuracy table is based on 4,000 service reports from the past 3 years. Have you considered how accurately your scale could perform based on 100 trucks per day, 6 days a week?

Scale	% Service Reports	Accuracy	Scale Error	Load Error	Load Error per Day	Load Error per Month	Load Error per Year
POWERCELL P200	10%	±0.15%	±0.15 tons	±1,500 lbs	±15,000 lbs	±45,000 lbs	±540,000 lbs
POWERCELL P300	27%	±0.10%	±0.10 tons	±1,000 lbs	±10,000 lbs	±30,000 lbs	±360,000 lbs
POWERCELL P400	18%	±0.07%	±0.07 tons	±700 lbs	±7,000 lbs	±21,000 lbs	±252,000 lbs

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■ Technology Comparison Report: Waste Industry

- See how truck scales at waste facilities around the world are performing. Does yours stack up?